



UNIVERSITY of
ROCHESTER
MEDICAL CENTER

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DEPARTMENT OF IMAGING SCIENCES

Imaging Sciences Interesting Cases

CASE 46

Trushar Sarang, MD

CLINICAL PRESENTATION: A 48-year-old male with acute right upper quadrant pain and increased amylase and lipase levels.

IMAGING FINDINGS: Gallstones with gallbladder wall thickening and a common bile duct stone.



Figure 1: Multiple gallstones with shadowing.



Figure 2: Gallbladder wall thickening, measuring 4.1 mm.



Figure 3: Stone visualized in the common bile duct

DIAGNOSIS: Chronic cholecystitis, cholelithiasis, and choledocholithiasis

DISCUSSION: Chronic cholecystitis is caused by repeated short attacks of acute inflammation, most commonly due to repeated cystic duct obstruction from gallstones. The repeated inflammation results in a thick walled, fibrous gallbladder wall. The gallbladder generally contains sludge or gallstones that often obstruct the gallbladder outlet to the cystic duct. Definitive diagnosis of acute or chronic cholecystitis requires a hepatobiliary scan demonstrating non-filling of the gallbladder, thus, indicating cystic duct blockage. However, ultrasound is often an initial screen for gallbladder pathology and surgeons will often perform a cholecystectomy with only an ultrasound, sufficiently suspicious history and physical exam, and supporting labs. A hepatobiliary scan is only used for equivocal cases.

The ultrasound features of chronic cholecystitis are a thick-walled gallbladder, sometimes distended, sometimes scarred down because of continued fibrosis. Gallstones and sludge can be seen as echogenic foci that may shadow if sufficiently large. Features supporting acute cholecystitis include peri-cholecystic fluid, gallbladder wall thickening due to edema, a non-mobile stone seen at the cystic duct, and a positive sonographic Murphy's sign. A positive Murphy's sign is elicited by the sonographer as the probe is placed directly over the gallbladder such that the parietal peritoneal surface can contact the gallbladder serosa when the patient takes a deep breath.

Choledocholithiasis is a stone within the common bile duct. Although very difficult to diagnosis by ultrasound, the third image clearly demonstrates an echogenic focus with shadowing consistent with a gallstone. The distal duct as it enters the pancreas is difficult to visualize by ultrasound. Secondary signs of choledocholithiasis include common bile duct thickening.

REFERENCES:

1. Middleton W. Ultrasound: Requisites, 2nd Edition, Mosby, 2003.